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LICHEN NOTES No. 14.
Three New Forms of Calicium.

G. K. MERRILL.

Calicium obscurum, Merrill, sp. nov.

Thallus indistinguishable. Apothecia scattered, rather slender, averaging 0.8 mm. in height, variously directed, straight or flexuous, cylindrical, brown or brownish-black, cortex commonly opaque, but sometimes sub-shining, rather abruptly expanding into a turbinate capitulum which in the younger states is flat-topped or concave, but finally when the extrusion of the sporal mass takes place becoming somewhat convex, sporal mass umbrine or fuscous, epruinose for the most part, but sometimes grayish-suffused just below the capitulum. Spores spherical or very slightly elongated, simple, walls distinct, pale, but not hyaline, $4-6\mu$ in diameter. Two forms of algae are found, *Cystococcus*, and a cylindrical articulated form that I am unable to name.

On dead *Polyporei*, trunks of decadent young pines in shaded woods. Rockland, Knox Co., Maine, Sept. 5, 1909.

The stipes arise indifferently from both surfaces of the host, but are most abundant near the extreme edge of the upper. *C. obscurum* seems referable to Nylander's subgenus *Allodium* Flora, 1880, p. 392, but this conclusion is made tentative by the presence of two algal symbionts. The *Calicium* referred to by Willey in his Enumeration of New Bedford Lichens, p. 34, as found on a *Polyporus* on Hemlock Spruce, and identified by Tuckerman as *C. trichiale* may possibly prove to be identical with the present. The plant here described may be distinguished from *C. trichiale* however, by its lack of thallus, its two forms of algae, pale spores, almost entire absence of pruina on stipes and capitulum, and the differences of stipital coloration.

Calicium minutissimum Merrill, sp. nov. sub-genus STENOCYBE.

Thallus spreading, both hypophloeous and epiphloeous, manifested to the eye as a pale determinate white-edged area of lighter color than the bark surrounding. Apothecia scattered, stipes minute, commonly less than 0.5 mm. in height, erect, usually straight, cylindrical, blackish, cortex opaque or faintly shining, rather gradually dilating into a truncated obconical capitulum, the margin inflexed and disk depressed. Spores sub-fusiform, sometimes simple, one—two—but typically three-septate, usually slightly constricted at the septa, brownish or livid-brownish, $14-30 \times 4-7\mu$. No algae were detected in either stipes or thallus. The epithallus appears to be without structure. A faint reaction noted on application of potassic hydrate.

On smooth bark of young oaks, summit of Mt. Battie, Camden, Knox Co., Maine, Aug. 22, 1909, G. K. Merrill.

From the minuteness of the stipes the plant is scarcely distinguishable except to acute vision. Allied to *C. byssaceum* Fr. but sufficiently differentiated by the determinate thallus and typically three-septate spores.

CALICIUM CURTISII Tuck. var. **SPLENDIDULA** Merrill, Lichenes Exsiccati No. 24, June, 1909.

Thallus variable in expansion but sometimes spreading, both hypophloeous and epiphloeous, indicated to the eye by a filmy determinate area lighter in color than the surrounding bark. Apothecia sparse and scattered, or abundant, the stipes relatively stout, averaging 0.5 mm. in height, erect, cylindrical, black, cortex smooth and shining, abruptly dilating into a turbinate or sub-globose capitulum likewise shining, the sporal mass not noticeably extruded, epruinose or rarely slightly suffused at the apex of the capitulum. Spores ellipsoid, brown, simple or indistinctly bilocular $11-15 \times 5-7\mu$ in linear cylindrical thekes.

On the main stems and larger branches of *Rhus typhina*, Rockland, Knox Co., Maine, May 28, 1909, G. K. Merrill, and on same substratum Ottawa, Ontario, J. Macoun.

Tuckerman in Genera p. 241 remarks that *C. Curtisii* is associable with the cluster which shall include *C. byssaceum* Fr., but the plant here described presents no characters in common with *Stenocybe*. The thallus of the present is not unlike that of *C. minutissimum* above described, but it is likewise similar to the visible thallus of many of the obscure forms of *Arthonia* and *Pyrenula* found growing on smooth barks.

Rockland, Maine.

NOTE ON AMBLYSTEGIUM NOTEROPHILUM.

(The following extract from Mr. Hill's letter will explain itself.)

I am now able to offer fruiting specimens of *Amblystegium noterophilum* (Sulliv.) Holzinger, this being the first time I have found it in fruit. I was led to anticipate the date by finding plants in August, 1908, with both archegonia and antheridia numerous and well developed. As the station is nearly forty miles from my home I could not keep in close touch with their development, but went after them when it seemed probable they would be in fruit. This, as the label shows, was June 25th, 1909. I found them fruiting freely, but should have been two weeks earlier. However they show the peristome very well, and so I offer them.

Its time of maturation as shown by this is early June. I assume that fruiting plants are quite rare; you will recall that it is the only species whose sporophyte is figured by Cheney in his article on North American Species of *Amblystegium* (Bot. Gaz. 24: 236, 1897) as he did not know of any figure of the capsule published elsewhere.

I have collected the moss in three more localities in small tributaries of the Desplains river, but they have been the submerged form. It is commonly plentiful where it grows forming tufts adhering to stones and with a habit quite like a *Fontinalis*, and may easily be taken for one at first sight. The water it frequents is commonly cold, usually in the outlet of springs or in their neighborhood, or in spring-fed streams, the water calcareous.

Several years ago I collected it at Boyne Falls, Michigan. It was there attached to logs and sticks in Boyne river, associated with *Fissidens grandifrons*. It was in an *Arbor Vitae* wood, the water cold, and abounding in